UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

August 16, 2012

MEMORANDUM

Subject: Efficacy Review for EPA Reg. No. 84542-T, Antimicrobial Cupron Enhanced EOS Surface; DP Barcode: 401808

From: Tajah Blackburn, Ph.D., Microbiologist
Efficacy Evaluation Team
Product Science Branch
Antimicrobials Division (7510P) 8/16/12

To: Jacqueline Campbell PM34/Stacey Grisgby
Regulatory Management Branch II
Antimicrobials Division (7510P)

Applicant: Cupron Scientific Ltd.
800 East Leigh Street
Richmond, VA 23219

Formulation from the Label:

Active Ingredient(s)	% by wt.
Copper (I) Oxide	16.0%
Other Ingredients	84.0%
Total	100.0%

I BACKGROUND

The product, Antimicrobial Cupron Enhanced EOS Surface (EPA File Symbol 84542-T) is seeking a new registration to support claims as supplemental sanitizer demonstrating a 99.9% reduction in bacteria within two hours. The product is a hard surface molded and cut for use as tables, desks, and non-food contact counters. Efficacy data were generated at MicroBioTest located at 105 Carpenter Drive in Sterling, VA, 20164.

The current data package contained a letter from the registrant's representative, Ag-Chem Consulting (dated April 15, 2012), EPA Form 8670-4 (Confidential Statement of Formula), Statement of No Data Confidentiality for each study, Good Laboratory Practices (GLP) Compliance Statement for each study, efficacy studies (MRID Nos. 488019-02 through 488019-13), and the proposed label.

II USE DIRECTIONS

The product is proposed to support claims for supplemental sanitizer with additional claims for continuous and...The product will be molded and cut for use in tables, desks, non-food contact counters, over the bed tables, bed side tables, hand rails, carts, doors, door push plates, towel bars, floor tiles, ceiling tiles, instrument casings and molded knobs, shopping carts, trays, soap holders, and light switches/plates. Directions on the proposed label provided the following instructions for the preparation, use, and maintenance of the product:

> The use of Antimicrobial Cupron Enhances Hard Surfaces does not replace standard infection controls procedures and good hygienic practices. Antimicrobial Cupron Enhanced Hard Surfaces must be cleaned and sanitized according to standard practice. Health care facilities must maintain the product in accordance with infection control guidelines; users must continue to follow all current infection control practices, including those practices related to disinfection of environmental surfaces. Routine cleaning to remove dirt and filth is necessary for good sanitation and assure the effective antibacterial performance of the Antimicrobial Cupron Enhanced EOS Surface. Cleaning agents typically used for traditional touching surfaces are permissible; the appropriate cleaning agent depends on the type of soiling and the measure of sanitization required.

III AGENCY STANDARDS FOR PROPOSED CLAIMS

Sanitizer Test (for inanimate, non-food contact surfaces): The effectiveness of sanitizers for non-food contact surfaces must be supported by data that show that the product will substantially reduce the numbers of test bacteria on a treated surface over those on an untreated control surface. The test surface(s) should represent the type(s) of surfaces recommended for treatment on the label, i.e., porous or non-porous. Products that are represented as "one-step sanitizers" should be tested with an appropriate organic soil load, such as 5 percent serum. Tests should be performed with each of 3 product samples, representing 3 different product lots, one of which is at least 60 days old against *Staphylococcus aureus* (ATCC 6538) and either *Klebsiella pneumoniae* (aberrant, ATCC 4352) or *Enterobacter aerogenes* (ATCC 13048 or

15038). Results must show a bacterial reduction of at least 99.9 percent over the parallel control within 5 minutes.

Residual Self-Sanitizing Products: The effectiveness of sanitizers that bear claims of residual activity must be supported by data that show that the product continues to reduce the number of challenge microorganisms over an identified period of time. Products with residual self-sanitizing activity keyed to the presence of moisture on surfaces should be tested in a controlled or simulated in-use study. The study should be designed in consultation with the Agency. Products with residual self-sanitizing activity intended for use on dry surfaces should be tested in accordance with Protocol #01-1A, Protocol for Residual Self-Sanitizing Activity of Dried Chemical Residues on Hard, Non-Porous Surfaces. These Agency standards are presented in OPPTS 810.2100.

Modifications for Copper Alloys: Modified versions of two acceptable Agency methods, combined with a novel method, were merged to generate a test system to represent residual self-sanitizing. The method, *Standard Test Method for Efficacy of Sanitizers Recommended for Inanimate Non-Food Contact Surfaces*, was modified to extend the contact time from 5 minutes to 120 minutes. Subsequent testing was modified to follow the *EPA Protocol for Residual Self-sanitizing Activity of Dried Chemical Residues on Hard Non-porous Surfaces*; these modifications included (1) changing the exposure time from 5 minutes to 120 minutes, and (2) replacing the coated antimicrobial surfaces with copper alloy surfaces. A third method was developed to show that copper surfaces could be effective after numerous, sequential re-inoculations. Briefly, the initial 5 µl inoculations were sequentially applied at 0, 3, 6, 12, 18, and 21 hours, resulting in 40 µl of inoculum applied over 24 hours. Next, multiple quantitative recoveries were performed at 2, 6, 12, 18, and 24 hours to access reductions from multiple inoculations. To support a claim for sanitizing and residual self-sanitizing efficacy of a copper alloy surface, a minimum of a 99.9% reduction in numbers of the test organism(s) on the test surface compared to the number of test organism(s) on the control surface must be achieve at all recovery times over two hours inoculation and exposure period. For 24 hours continuous reduction claims, a minimum of a 90% reduction (N. Whyte, Protocol review October 30, 2006).

Supplemental Recommendations: Antimicrobial agents which claim to be "one-step" cleaner-disinfectants, or cleaner-sanitizers, or agents to be used in the presence of organic soil, must undergo appropriate efficacy testing modified to include a representative organic soil of 5% blood serum. A suggested method to simulate antimicrobial treatment of dry inanimate surfaces is to add the blood serum 5% v/v (19mL bacterial inoculum with 1mL blood serum) to bacterial inoculum prior to carrier contamination and drying. Control data should be produced as described in Supplemental Recommendation 6 of DIS/TSS-2 to confirm the validity of this test with this modification. The suggested organic soil level is appropriate for simulation of lightly to moderately soiled surfaces. For highly soiled surfaces, a prior cleaning step should be recommended on the product label. A suggested procedure for incorporating organic soil load where the antimicrobial agent is not tested against a dry inanimate surface, such as the AOAC Fungicidal Test involves adding 5% v/v blood serum directly to the test solution (e.g., 4.75 ml test solution + 0.25 ml blood serum) before adding 0.5 ml of the required level (5×10^6 /ml) of conidia.

IV SYNOPSIS OF SUBMITTED EFFICACY STUDIES

1. **MRID No. 488019-02, "Efficacy Evaluation of a Copper Enhanced Hard Surface as a Sanitizer" using Cupron Enhanced EOS Hard Surface Grey by Angela Hollingsworth. Study Completion Date—March 31, 2012. Laboratory Project Identification Number—619-109.**

The product was tested against *Staphylococcus aureus* (ATCC# 6538) and *Enterobacter aerogenes* (ATCC# 13048). Three lots (Lot Nos. 05012064, 05112024, and 05108058) of the product, Cupron Enhanced EOS Hard Surface Grey were tested using Protocol No. 619.1.12.28.11 (copy provided). A control sample, Cupron Control Hard Surface (DS No. C122), was provided and included in the test system. The test system included 5 carrier replicates/lot and 3 control carrier replicates per test organism. Organic soil described as 0.25 mL of heat-inactivated fetal bovine serum plus 0.05 mL of Triton X-100 solution added to 4.70 mL of the bacteria suspension per 5 mL to yield at 5% FBS and 0.01% Trition X-100 challenge. An aliquot, 0.02 mL of the inoculum was placed onto each sterile carrier. The inoculum was spread to within approximately ⅛" of the edge of the carrier. The carriers were allowed to dry with lids ajar for 35 minutes under ambient conditions. At the conclusion of the 120 minute contact time, each carrier was transferred to a jar containing 20 mL of neutralizer at the appropriate staggered intervals. Each jar was sonicated for five minutes and then rotated by hand to mix. Within one hour after sonication, serial dilutions were prepared using PBS (10^{-1} and 10^{-4}). Duplicate 1.0 mL aliquots from each jar/dilution (10^{0}-10^{-4}) were plated using TSA pour plates. For *S. aureus*, plates were incubated for 48±4 hours at 35-37°C; for *E. aerogenes* plates were incubated for 48±4 hours at 25-30°C. Controls included those for carrier quantitation, purity, sterility, viability, neutralizer effectiveness control, and microorganism confirmation.

2. **MRID No. 488019-03, "Efficacy Evaluation of a Copper Enhanced Hard Surface as a Sanitizer Supplemental" using Cupron Enhanced EOS Hard Surface Grey by Angela Hollingsworth. Study Completion Date—March 30, 2012. Laboratory Project Identification Number—619-110.**

The product was tested against *Pseudomonas aeruginosa* (ATCC 15442), Methicillin Resistant *Staphylococcus aureus* (MRSA) (ATCC# 33592) and *Escherichia coli* O157:H7 (ATCC# 35150). Two lots (Lot Nos. 05012064 and 05112024) of the product, Cupron Enhanced EOS Hard Surface Grey were tested using Protocol No. 619.1.01.03.12 (copy provided). A control sample, Cupron Control Hard Surface (DS No. C122), was provided and included in the test system. The test system included 5 carrier replicates/lot and 3 control carrier replicates per test organism. Organic soil described as 0.25 mL of heat-inactivated fetal bovine serum plus 0.05 mL of Triton X-100 solution added to 4.70 mL of the bacteria suspension per 5 mL to yield at 5% FBS and 0.01% Trition X-100 challenge. An aliquot, 0.02 mL of the inoculum was placed onto each sterile carrier. The inoculum was spread to within approximately ⅛" of the edge of the carrier. The carriers were allowed to dry with lids ajar for 35 minutes under ambient conditions. At the conclusion of the 120 minute contact time, each carrier was transferred to a jar containing 20 mL of neutralizer at the appropriate staggered intervals. Each jar was sonicated for five minutes and then rotated by hand to mix. Within one hour after sonication, serial dilutions were prepared using PBS (10^{-1} and 10^{-4}). Duplicate

1.0 mL aliquots from each jar/dilution (100-10-4) were plated using TSA pour plates. Plates were incubated for 48±4 hours at 35-37°C. Controls included those for carrier quantitation, purity, sterility, viability, neutralizer effectiveness control, and microorganism confirmation.

Note: The prepared MRSA culture was subcultured onto a TSA+ plates and incubated. On a subsequent cross-hatched patterned plate, oxacillin discs were placed on the plate. The same procedure was conducted concurrently using *Staphylococcus aureus* to confirm validity. MRSA resistance was confirmed and expressed as Zone of inhibition (ZOI).

3. **MRID No. 488019-05, "Efficacy Evaluation of Continuous Bacterial Contamination Reduction on a Copper Enhanced Hard Surface--Supplemental" using Cupron Enhanced EOS Hard Surface Grey by Angela Hollingsworth. Study Completion Date—March 31, 2012. Laboratory Project Identification Number—619-112.**

The product was tested against *Pseudomonas aeruginosa* (ATCC 15442), Methicillin Resistant *Staphylococcus aureus* (MRSA) (ATCC# 33592) and *Escherichia coli* O157:H7 (ATCC# 35150). Two lots (Lot Nos. 05012064 and 05112024) of the product, Cupron Enhanced EOS Hard Surface Grey were tested using Protocol No. 619.2.01.03.12 (copy provided). A control sample, Cupron Control Hard Surface (DS No. C122), was provided and included in the test system. For each lot of the test material, per microorganism, five sets with five replicate carriers per set were prepared along with five sets per microorganism of the control material with three replicate carriers each for the primary aspects of the test. Organic soil described as 0.25 mL of heat-inactivated fetal bovine serum plus 0.05 mL of Triton X-100 solution added to 4.70 mL of the bacteria suspension per 5 mL to yield at 5% FBS and 0.01% Trition X-100 challenge. All test surfaces were inoculated at staggered intervals with 5 µL of the test organism. The inoculum was spread to within approximately ⅛" of the edge of the carrier. This initial inoculation was considered as "time zero". The carriers were dried at ambient conditions for the duration of exposure. The exposure period began with the initial "time-zero" inoculation. The sets not removed for quantitative recovery were inoculated in the same manner at 3, 6, 9, 12, 15, 18, and 21 hours post "time-zero" inoculation. The sets for quantitative recovery were removed at 2 (single inoculation), 6 (two inoculations), 12 (four inoculations), and 24 (8 inoculations) hours. At the conclusion of each of the contact times, carriers were transferred to jar containing 20 mL of neutralizer at the appropriate staggered intervals. Each jar was sonicated for five minutes and then rotated by hand to mix. Within one hour after sonication, serial dilutions were prepared using PBS (10^{-1} and 10^{-4}). Duplicate 1.0 mL aliquots from each jar/dilution (10^{0}-10^{-4}) were plated using TSA pour plates. Plates were incubated for 48±4 hours at 35-37°C. Controls included those for carrier quantitation, purity, sterility, viability, neutralizer effectiveness control, and microorganism confirmation.
Note: The prepared MRSA culture was subcultured onto a TSA+ plates and incubated. On a subsequent cross-hatched patterned plate, oxacillin discs were placed on the plate. The same procedure was conducted concurrently using *Staphylococcus aureus* to confirm validity. MRSA resistance was confirmed and expressed as Zone of inhibition (ZOI).

4. **MRID No. 488019-04, "Efficacy Evaluation of Continuous Bacterial Contamination Reduction on a Copper Enhanced Hard Surface--Supplemental" using Cupron Enhanced EOS Hard Surface Grey by Angela Hollingsworth. Study Completion Date—March 31, 2012. Laboratory Project Identification Number—619-111.**

The product was tested against *Staphylococcus aureus* (ATCC# 6538) and *Enterobacter aerogenes* (ATCC# 13048). Three lots (Lot Nos. 05012064, 05112024, and 05108058) of the product, Cupron Enhanced EOS Hard Surface Grey were tested using Protocol No. 619.2.12.28.11 (copy provided). A control sample, Cupron Control Hard Surface (DS No. C122), was provided and included in the test system. For each lot of the test material, per microorganism, five sets with five replicate carriers per set were prepared along with five sets per microorganism of the control material with three replicate carriers each for the primary aspects of the test. Organic soil described as 0.25 mL of heat-inactivated fetal bovine serum plus 0.05 mL of Triton X-100 solution was added to 4.70 mL of the bacteria suspension per 5 mL to yield at 5% FBS and 0.01% Trition X-100 challenge. All test surfaces were inoculated at staggered intervals with 5 µL of the test organism. The inoculum was spread to within approximately ⅛" of the edge of the carrier. This initial inoculation was considered as "time zero". The carriers were dried at ambient conditions for the duration of exposure. The exposure period began with the initial "time-zero" inoculation. The sets not removed for quantitative recovery were inoculated in the same manner at 3, 6, 9, 12, 15, 18, and 21 hours post "time-zero" inoculation. The sets for quantitative recovery were removed at 2 (single inoculation), 6 (two inoculations), 12 (four inoculations), and 24 (8 inoculations) hours. At the conclusion of each of the contact times, carriers were transferred to jar containing 20 mL of neutralizer at the appropriate staggered intervals. Each jar was sonicated for five minutes and then rotated by hand to mix. Within one hour after sonication, serial dilutions were prepared using PBS (10^{-1} and 10^{-4}). Duplicate 1.0 mL aliquots from each jar/dilution (100-10-4) were plated using TSA pour plates. *S. aureus* plates were incubated for 48±4 hours at 35-37°C. *E. aerogenes* plates were incubated for 48±4 hours at 25-30°C. Controls included those for carrier quantitation, purity, sterility, viability, neutralizer effectiveness control, and microorganism confirmation.

5. **MRID No. 488019-06, "Efficacy Evaluation of Residual Self-Sanitizing Activity of a Copper Enhanced Hard Surface" using Cupron Enhanced EOS Hard Surface Grey by Angela Hollingsworth. Study Completion Date—March 31, 2012. Laboratory Project Identification Number—619-113.**

The product was tested against *Staphylococcus aureus* (ATCC# 6538) and *Enterobacter aerogenes* (ATCC# 13048). Three lots (Lot Nos. 05012064, 05112024, and 05108058) of the product, Cupron Enhanced EOS Hard Surface Grey were tested using Protocol No. 619.3.12.28.11 (copy provided). A control sample, Cupron Control Hard Surface (DS No. C122), was provided and included in the test system. The test system included 4 carrier replicates/lot and 4 control carrier replicates per test organism. Organic soil described as 0.25 mL of heat-inactivated fetal bovine serum plus 0.05 mL of Triton X-100 solution added to 4.70 mL of the bacteria suspension per 5 mL to yield at 5% FBS and 0.01% Trition X-100 challenge. Initial Sanitizer Test. Each lot of the test surface carrier and control was inoculated with 10 µL of the prepared initial sanitizer inoculum. Carriers were allowed to dry for 30 minutes at 37°C at 40% relative humidity. Immediately after drying, the 120 minute contact time was initiated. At the conclusion of the contact time, each carrier was transferred to a jar containing 30 mL of neutralizer.

Each jar was subsequently sonicated for 20±2 seconds. The samples were then mixed on an orbital shaker for 3-4 minutes at 250 rpm. Serial dilution were then prepared using sterile deionized water (100 - 10-4). Duplicate 1.0 mL aliquots from the jar dilutions (100- 10-2) and control aliquots were plated using TSA pour plates. *S. aureus* plates were incubated for 48±4 hours at 35-37°C. *E. aerogenes* plates were incubated for 48±4 hours at 25-30°C. Simulated Wear and Reinoculation. Prior to inoculation, the abrasion tester was set to a speed of 2.25 –2.50 for total surface contact time of approximately 4-5 seconds for one complete cycle. The speed was measured with a stopwatch, and the machine's cycle was calibrated by adjusting the number counter to 1, 5, 10, and 20. A wear cycle was identified as one pass to the left and a return pass to the right on the Gardner scrubber with an abrasion boat fitted with a foam liner and dry cotton cloth. The weight of the fully assembled weight boat was determined to be 1084 ± 1g prior to use. To initiate the wear cycles, each carrier was subjected to a dry wear cycle using the Gardco Washability and Wear Tester and the fully assembled wieght boat. Fifteen (15) minutes after the initial wear cycle, each carrier was re-inoculated and dried as previously described. Each carrier was then subjected to a wet wear cycle using the Gardco Washability and Wear Tester and the fully assembled wieght boat. The fully assembled weight boat was sprayed for one second with sterile deionized water using a Preval sprayer from a distance of 75±1 cm. At least 15 minutes after the secondary wear cycle, each carrier was re-inoculated with 10µL of test organism and dried for 30 minutes at 36°C. Each carrier was subjected to alternating dry and wet wears until a total of 11 reinoculations and 12 wear cycles had been performed (Table 1 in the Protocol). The Final Sanitizer Evaluation was conducted at the completion of the wear cycles and reinoculations were identical to the Initial Sanitizer Evaluation. Controls included those for purity, sterility, inoculum confirmation counts, viability, neutralizer effectiveness, and microorganism confirmation.

6. **MRID No. 488019-07, "Efficacy Evaluation of Residual Self-Sanitizing Activity of a Copper Enhanced Hard Surface" using Cupron Enhanced EOS Hard Surface Grey by Angela Hollingsworth. Study Completion Date—March 31, 2012. Laboratory Project Identification Number—619-114.**

The product was tested against *Pseudomonas aeruginosa* (ATCC 15442), Methicillin Resistant *Staphylococcus aureus* (MRSA) (ATCC# 33592) and *Escherichia coli* O157:H7 (ATCC# 35150). Two lots (Lot Nos. 05012064 and 05112024) of the product, Cupron Enhanced EOS Hard Surface Grey were tested using Protocol No. 619.3.01.03.12 (copy provided). A control sample, Cupron Control Hard Surface (DS No. C122), was provided and included in the test system. The test system included 4 carrier replicates/lot and 4 control carrier replicates per test organism. Organic soil described as 0.25 mL of heat-inactivated fetal bovine serum plus 0.05 mL of Triton X-100 solution added to 4.70 mL of the bacteria suspension per 5 mL to yield at 5% FBS and 0.01% Trition X-100 challenge. Initial Sanitizer Test. Each lot of the test surface carrier and control was inoculated with 10 µL of the prepared initial sanitizer inoculum. Carriers were allowed to dry for 30 minutes at 37°C at 40% relative humidity. Immediately after drying, the 120 minute contact time was initiated. At the conclusion of the contact time, each carrier was transferred to a jar containing 30 mL of neutralizer. Each jar was subsequently sonicated for 20±2 seconds. The samples were then mixed on an orbital shaker for 3-4 minutes at 250 rpm. Serial dilution were then prepared using sterile deionized water (10^0 - 10^{-4}). Duplicate 1.0 mL aliquots from the jar dilutions (10^0-

10^{-2}) and control aliquots were plated using TSA pour plates. Plates were incubated for 48±4 hours at 35-37°C. Simulated Wear and Reinoculation. Prior to inoculation, the abrasion tester was set to a speed of 2.25 –2.50 for total surface contact time of approximately 4-5 seconds for one complete cycle. The speed was measured with a stopwatch, and the machine's cycle was calibrated by adjusting the number counter to 1, 5, 10, and 20. A wear cycle was identified as one pass to the left and a return pass to the right on the Gardner scrubber with an abrasion boat fitted with a foam liner and dry cotton cloth. The weight of the fully assembled weight boat was determined to be 1084 ± 1g prior to use. To initiate the wear cycles, each carrier was subjected to a dry wear cycle using the Gardco Washability and Wear Tester and the fully assembled wieght boat. Fifteen (15) minutes after the initial wear cycle, each carrier was re-inoculated and dried as previously described. Each carrier was then subjected to a wet wear cycle using the Gardco Washability and Wear Tester and the fully assembled wieght boat. The fully assembled weight boat was sprayed for one second with sterile deionized water using a Preval sprayer from a distance of 75±1 cm. At least 15 minutes after the secondary wear cycle, each carrier was re-inoculated with 10µL of test organism and dried for 30 minutes at 36°C. Each carrier was subjected to alternating dry and wet wears until a total of 11 reinoculations and 12 wear cycles had been performed (Table 1 in the Protocol). The Final Sanitizer Evaluation was conducted at the completion of the wear cycles and reinoculations were identical to the Initial Sanitizer Evaluation. The Final Sanitizer Evaluation was performed two days after the initial inoculation. Controls included those for purity, sterility, inoculum confirmation counts, viability, neutralizer effectiveness, and microorganism confirmation.
Note: The prepared MRSA culture was subcultured onto a TSA+ plates and incubated. On a subsequent cross-hatched patterned plate, oxacillin discs were placed on the plate. The same procedure was conducted concurrently using Staphylococcus aureus to confirm validity. MRSA resistance was confirmed and expressed as Zone of inhibition (ZOI).

7. **MRID No. 488019-08, "Efficacy Evaluation of Residual Self-Sanitizing Activity of a Copper Enhanced Hard Surface" using Cupron Enhanced EOS Hard Surface Beige by Angela Hollingsworth. Study Completion Date—March 31, 2012. Laboratory Project Identification Number—619-120.**

The product was tested against *Pseudomonas aeruginosa* (ATCC 15442), Methicillin Resistant *Staphylococcus aureus* (MRSA) (ATCC# 33592) and *Escherichia coli* O157:H7 (ATCC# 35150). Two lots (Lot Nos. 05012064 and 05112024) of the product, Cupron Enhanced EOS Hard Surface Beige were tested using Protocol No. 619.6.01.31.12 (copy provided). A control sample, Cupron Control Hard Surface (DS No. C122), was provided and included in the test system. The test system included 4 carrier replicates/lot and 4 control carrier replicates per test organism. Organic soil described as 0.25 mL of heat-inactivated fetal bovine serum plus 0.05 mL of Triton X-100 solution added to 4.70 mL of the bacteria suspension per 5 mL to yield at 5% FBS and 0.01% Trition X-100 challenge. Initial Sanitizer Test. Each lot of the test surface carrier and control was inoculated with 10 µL of the prepared initial sanitizer inoculum. Carriers were allowed to dry for 30 minutes at 37°C at 40% relative humidity. Immediately after drying, the 120 minute contact time was initiated. At the conclusion of the contact time, each carrier was transferred to a jar containing 30 mL of neutralizer. Each jar was subsequently sonicated for 20±2 seconds. The samples were then mixed on an orbital shaker for 3-4 minutes at 250 rpm. Serial dilution were then prepared using

sterile deionized water (10^0 - 10^{-4}). Duplicate 1.0 mL aliquots from the jar dilutions (10^0-10^{-2}) and control aliquots were plated using TSA pour plates. Plates were incubated for 48±4 hours at 35-37°C. Simulated Wear and Reinoculation. Prior to inoculation, the abrasion tester was set to a speed of 2.25 –2.50 for total surface contact time of approximately 4-5 seconds for one complete cycle. The speed was measured with a stopwatch, and the machine's cycle was calibrated by adjusting the number counter to 1, 5, 10, and 20. A wear cycle was identified as one pass to the left and a return pass to the right on the Gardner scrubber with an abrasion boat fitted with a foam liner and dry cotton cloth. The weight of the fully assembled weight boat was determined to be 1084 ± 1g prior to use. To initiate the wear cycles, each carrier was subjected to a dry wear cycle using the Gardco Washability and Wear Tester and the fully assembled wieght boat. Fifteen (15) minutes after the initial wear cycle, each carrier was re-inoculated and dried as previously described. Each carrier was then subjected to a wet wear cycle using the Gardco Washability and Wear Tester and the fully assembled wieght boat. The fully assembled weight boat was sprayed for one second with sterile deionized water using a Preval sprayer from a distance of 75±1 cm. At least 15 minutes after the secondary wear cycle, each carrier was re-inoculated with 10µL of test organism and dried for 30 minutes at 36°C. Each carrier was subjected to alternating dry and wet wears until a total of 11 reinoculations and 12 wear cycles had been performed (Table 1 in the Protocol). The Final Sanitizer Evaluation was conducted at the completion of the wear cycles and reinoculations were identical to the Initial Sanitizer Evaluation. The Final Sanitizer Evaluation was performed two days after the Initial Inoculation. Controls included those for purity, sterility, inoculum confirmation counts, viability, neutralizer effectiveness, and microorganism confirmation.
Note: The prepared MRSA culture was subcultured onto a TSA+ plates and incubated. On a subsequent cross-hatched patterned plate, oxacillin discs were placed on the plate. The same procedure was conducted concurrently using Staphylococcus aureus to confirm validity. MRSA resistance was confirmed and expressed as Zone of inhibition (ZOI).

8. **MRID No. 488019-09, "Efficacy Evaluation of Residual Self-Sanitizing Activity of a Copper Enhanced Hard Surface" using Cupron Enhanced EOS Hard Surface Beige by Angela Hollingsworth. Study Completion Date—March 31, 2012. Laboratory Project Identification Number—619-119.**

The product was tested against *Staphylococcus aureus* (ATCC# 6538) and *Enterobacter aerogenes* (ATCC# 13048). Three lots (Lot Nos. 05012064, 05112024, and 05108058) of the product, Cupron Enhanced EOS Hard Surface Beige were tested using Protocol No. 619.3.01.31.12 (copy provided). A control sample, Cupron Control Hard Surface (DS No. C122), was provided and included in the test system. The test system included 4 carrier replicates/lot and 4 control carrier replicates per test organism. Organic soil described as 0.25 mL of heat-inactivated fetal bovine serum plus 0.05 mL of Triton X-100 solution added to 4.70 mL of the bacteria suspension per 5 mL to yield at 5% FBS and 0.01% Trition X-100 challenge. Initial Sanitizer Test. Each lot of the test surface carrier and control was inoculated with 10 µL of the prepared initial sanitizer inoculum. Carriers were allowed to dry for 30 minutes at 37°C at 40% relative humidity. Immediately after drying, the 120 minute contact time was initiated. At the conclusion of the contact time, each carrier was transferred to a jar containing 30 mL of neutralizer. Each jar was subsequently sonicated for 20±2 seconds. The samples were then mixed on an orbital shaker for 3-4 minutes at 250 rpm. Serial dilution were then prepared using

sterile deionized water (10^0 - 10^{-4}). Duplicate 1.0 mL aliquots from the jar dilutions (10^0-10^{-2}) and control aliquots were plated using TSA pour plates. S. aureus plates were incubated for 48±4 hours at 35-37°C. E. aerogenes plates were incubated for 48±4 hours at 25-30°C. Simulated Wear and Reinoculation. Prior to inoculation, the abrasion tester was set to a speed of 2.25 –2.50 for total surface contact time of approximately 4-5 seconds for one complete cycle. The speed was measured with a stopwatch, and the machine's cycle was calibrated by adjusting the number counter to 1, 5, 10, and 20. A wear cycle was identified as one pass to the left and a return pass to the right on the Gardner scrubber with an abrasion boat fitted with a foam liner and dry cotton cloth. The weight of the fully assembled weight boat was determined to be 1084 ± 1g prior to use. To initiate the wear cycles, each carrier was subjected to a dry wear cycle using the Gardco Washability and Wear Tester and the fully assembled wieght boat. Fifteen (15) minutes after the initial wear cycle, each carrier was re-inoculated and dried as previously described. Each carrier was then subjected to a wet wear cycle using the Gardco Washability and Wear Tester and the fully assembled wieght boat. The fully assembled weight boat was sprayed for one second with sterile deionized water using a Preval sprayer from a distance of 75±1 cm. At least 15 minutes after the secondary wear cycle, each carrier was re-inoculated with 10µL of test organism and dried for 30 minutes at 36°C. Each carrier was subjected to alternating dry and wet wears until a total of 11 reinoculations and 12 wear cycles had been performed (Table 1 in the Protocol). The Final Sanitizer Evaluation was conducted at the completion of the wear cycles and reinoculations were identical to the Initial Sanitizer Evaluation. The Final Sanitizer Evaluation was performed two days after the initial inoculation Controls included those for purity, sterility, inoculum confirmation counts, viability, neutralizer effectiveness, and microorganism confirmation.

9. **MRID No. 488019-10, "Efficacy Evaluation of Continuous Bacterial Contamination Reduction on a Copper Enhanced Hard Surface–Supplemental" using Cupron Enhanced EOS Hard Surface Beige by Angela Hollingsworth. Study Completion Date—March 31, 2012. Laboratory Project Identification Number—619-118.**

The product was tested against *Pseudomonas aeruginosa* (ATCC 15442), Methicillin Resistant *Staphylococcus aureus* (MRSA) (ATCC# 33592) and *Escherichia coli* O157:H7 (ATCC# 35150). Two lots (Lot Nos. 05012064 and 05112024) of the product, Cupron Enhanced EOS Hard Surface Beige were tested using Protocol No. 619.5.01.31.12 (copy provided). A control sample, Cupron Control Hard Surface (DS No. C122), was provided and included in the test system. For each lot of the test material, per microorganism, five sets with five replicate carriers per set were prepared along with five sets per microorganism of the control material with three replicate carriers each for the primary aspects of the test. Organic soil described as 0.25 mL of heat-inactivated fetal bovine serum plus 0.05 mL of Triton X-100 solution added to 4.70 mL of the bacteria suspension per 5 mL to yield at 5% FBS and 0.01% Trition X-100 challenge. All test surfaces were inoculated at staggered intervals with 5 µL of the test organism. The inoculum was spread to within approximately ⅛" of the edge of the carrier. This initial inoculation was considered as "time zero". The carriers were dried at ambient conditions for the duration of exposure. The exposure period began with the initial "time-zero" inoculation. The sets not removed for quantitative recovery were inoculated in the same manner at 3, 6, 9, 12, 15, 18, and 21 hours post "time-zero" inoculation. The sets for quantitative recovery were removed at 2 (single inoculation), 6 (two inoculations), 12

(four inoculations), and 24 (8 inoculations) hours. At the conclusion of each of the contact times, carriers were transferred to jar containing 20 mL of neutralizer at the appropriate staggered intervals. Each jar was sonicated for five minutes and then rotated by hand to mix. Within one hour after sonication, serial dilutions were prepared using PBS (10-1 and 10-4). Duplicate 1.0 mL aliquots from each jar/dilution (100-10-4) were plated using TSA pour plates. Plates were incubated for 48±4 hours at 35-37°C. Controls included those for carrier quantitation, purity, sterility, viability, neutralizer effectiveness control, and microorganism confirmation.
Note: The prepared MRSA culture was subcultured onto a TSA+ plates and incubated. On a subsequent cross-hatched patterned plate, oxacillin discs were placed on the plate. The same procedure was conducted concurrently using Staphylococcus aureus to confirm validity. MRSA resistance was confirmed and expressed as Zone of inhibition (ZOI).

10. MRID No. 488019-11, "Efficacy Evaluation of Continuous Bacterial Contamination Reduction on a Copper Enhanced Hard Surface--Supplemental" using Cupron Enhanced EOS Hard Surface Beige by Angela Hollingsworth. Study Completion Date—March 31, 2012. Laboratory Project Identification Number—619-117.

The product was tested against *Staphylococcus aureus* (ATCC# 6538) and *Enterobacter aerogenes* (ATCC# 13048). Three lots (Lot Nos. 05012064, 05112024, and 05108058) of the product, Cupron Enhanced EOS Hard Surface Beige were tested using Protocol No. 619.2.12.28.11 (copy provided). A control sample, Cupron Control Hard Surface (DS No. C122), was provided and included in the test system. For each lot of the test material, per microorganism, five sets with five replicate carriers per set were prepared along with five sets per microorganism of the control material with three replicate carriers each for the primary aspects of the test. Organic soil described as 0.25 mL of heat-inactivated fetal bovine serum plus 0.05 mL of Triton X-100 solution was added to 4.70 mL of the bacteria suspension per 5 mL to yield at 5% FBS and 0.01% Trition X-100 challenge. All test surfaces were inoculated at staggered intervals with 5 µL of the test organism. The inoculum was spread to within approximately ⅛" of the edge of the carrier. This initial inoculation was considered as "time zero". The carriers were dried at ambient conditions for the duration of exposure. The exposure period began with the initial "time-zero" inoculation. The sets not removed for quantitative recovery were inoculated in the same manner at 3, 6, 9, 12, 15, 18, and 21 hours post "time-zero" inoculation. The sets for quantitative recovery were removed at 2 (single inoculation), 6 (two inoculations), 12 (four inoculations), and 24 (8 inoculations) hours. At the conclusion of each of the contact times, carriers were transferred to jar containing 20 mL of neutralizer at the appropriate staggered intervals. Each jar was sonicated for five minutes and then rotated by hand to mix. Within one hour after sonication, serial dilutions were prepared using PBS (10^{-1} and 10^{-4}). Duplicate 1.0 mL aliquots from each jar/dilution (10^{0}-10^{-4}) were plated using TSA pour plates. *S. aureus* plates were incubated for 48±4 hours at 35-37°C. *E. aerogenes* plates were incubated for 48±4 hours at 25-30°C. Controls included those for carrier quantitation, purity, sterility, viability, neutralizer effectiveness control, and microorganism confirmation.

11. MRID No. 488019-12, "Efficacy Evaluation of a Copper Enhanced Hard Surface as a Sanitizer Supplemental" using Cupron Enhanced EOS Hard

Surface Beige by Angela Hollingsworth. Study Completion Date—March 30, 2012. Laboratory Project Identification Number—619-116.

The product was tested against *Pseudomonas aeruginosa* (ATCC 15442), Methicillin Resistant *Staphylococcus aureus* (MRSA) (ATCC# 33592) and *Escherichia coli* O157:H7 (ATCC# 35150). Two lots (Lot Nos. 05012064 and 05112024) of the product, Cupron Enhanced EOS Hard Surface Beige were tested using Protocol No. 619.4.01.31.12 (copy provided). A control sample, Cupron Control Hard Surface (DS No. C122), was provided and included in the test system. The test system included 5 carrier replicates/lot and 3 control carrier replicates per test organism. Organic soil described as 0.25 mL of heat-inactivated fetal bovine serum plus 0.05 mL of Triton X-100 solution added to 4.70 mL of the bacteria suspension per 5 mL to yield at 5% FBS and 0.01% Trition X-100 challenge. An aliquot, 0.02 mL of the inoculum was placed onto each sterile carrier. The inoculum was spread to within approximately ⅛" of the edge of the carrier. The carriers were allowed to dry with lids ajar for 35 minutes under ambient conditions. At the conclusion of the 120 minute contact time, each carrier was transferred to a jar containing 20 mL of neutralizer at the appropriate staggered intervals. Each jar was sonicated for five minutes and then rotated by hand to mix. Within one hour after sonication, serial dilutions were prepared using PBS (10^{-1} and 10^{-4}). Duplicate 1.0 mL aliquots from each jar/dilution (10^{0}-10^{-4}) were plated using TSA pour plates. Plates were incubated for 48±4 hours at 35-37°C. Controls included those for carrier quantitation, purity, sterility, viability, neutralizer effectiveness control, and microorganism confirmation.
Note: The prepared MRSA culture was subcultured onto a TSA+ plates and incubated. On a subsequent cross-hatched patterned plate, oxacillin discs were placed on the plate. The same procedure was conducted concurrently using *Staphylococcus aureus* to confirm validity. MRSA resistance was confirmed and expressed as Zone of inhibition (ZOI).

12. **MRID No. 488019-13, "Efficacy Evaluation of a Copper Enhanced Hard Surface as a Sanitizer" using Cupron Enhanced EOS Hard Surface Beige by Angela Hollingsworth. Study Completion Date—March 31, 2012. Laboratory Project Identification Number—619-115.**

The product was tested against *Staphylococcus aureus* (ATCC# 6538) and *Enterobacter aerogenes* (ATCC# 13048). Three lots (Lot Nos. 05012064, 05112024, and 05108058) of the product, Cupron Enhanced EOS Hard Surface Beige were tested using Protocol No. 619.1.01.31.12 (copy provided). A control sample, Cupron Control Hard Surface (DS No. C122), was provided and included in the test system. The test system included 5 carrier replicates/lot and 3 control carrier replicates per test organism. Organic soil described as 0.25 mL of heat-inactivated fetal bovine serum plus 0.05 mL of Triton X-100 solution added to 4.70 mL of the bacteria suspension per 5 mL to yield at 5% FBS and 0.01% Trition X-100 challenge. An aliquot, 0.02 mL of the inoculum was placed onto each sterile carrier. The inoculum was spread to within approximately ⅛" of the edge of the carrier. The carriers were allowed to dry with lids ajar for 35 minutes under ambient conditions. At the conclusion of the 120 minute contact time, each carrier was transferred to a jar containing 20 mL of neutralizer at the appropriate staggered intervals. Each jar was sonicated for five minutes and then rotated by hand to mix. Within one hour after sonication, serial dilutions were prepared using PBS (10^{-1} and 10^{-4}). Duplicate 1.0 mL aliquots from each jar/dilution (10^{0}-10^{-4}) were plated using TSA pour plates. For *S. aureus*, plates were incubated for 48±4 hours at 35-37°C; for *E.*

aerogenes plates were incubated for 48±4 hours at 25-30°C. Controls included those for carrier quantitation, purity, sterility, viability, neutralizer effectiveness control, and microorganism confirmation.

V RESULTS

Supplemental Sanitizer—Cupron Enhanced EOS Hard Surface Grey

MRID Number	Organism	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
488019-03	*Staphylococcus aureus*	05012064	7.5×10^5	$<1.0 \times 10^0$ $<1.0 \times 10^0$ 5.0×10^1 $<1.0 \times 10^0$ $<1.0 \times 10^0$	>99.9
		05112024	7.5×10^5	1.8×10^2 $<1.0 \times 10^0$ 1.1×10^2 $<1.0 \times 10^0$ 2.2×10^2	>99.9
		05108058	7.5×10^5	$<1.0 \times 10^0$ $<1.0 \times 10^0$ $<1.0 \times 10^0$ $<1.0 \times 10^0$ $<1.0 \times 10^0$	>99.9
488019-03	*Enterobacter aerogenes*	05012064	7.9×10^5	1.2×10^3 7.9×10^2 5.0×10^1 1.2×10^3 $<1.0 \times 10^0$	>99.9
		05112024	7.9×10^5	7.6×10^2 8.4×10^2 1.2×10^3 8.0×10^2 6.2×10^2	>99.9
		05108058	7.9×10^5	$<1.0 \times 10^0$ 6.2×10^2 $<1.0 \times 10^0$ 5.0×10^2 $<1.0 \times 10^0$	>99.9
488019-03	*Pseudomonas aeruginosa*	05012064	7.0×10^5	9.0×10^1 5.8×10^2 $<1.0 \times 10^0$ 5.0×10^2 1.6×10^2	>99.9
		05112024	7.0×10^5	4.4×10^2 $<1.0 \times 10^0$ 4.0×10^2 $<1.0 \times 10^0$ $<1.0 \times 10^0$	>99.9
488019-03	Methicillin Resistant *Staphylococcus aureus* (MRSA)	05012064	8.5×10^5	$<1.0 \times 10^0$ $<1.0 \times 10^0$ $<1.0 \times 10^0$ $<1.0 \times 10^0$ $<1.0 \times 10^0$	>99.9

MRID Number	Organism	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
		05112024	8.5×10^5	$<1.0 \times 10^0$ $<1.0 \times 10^0$ $<1.0 \times 10^0$ $<1.0 \times 10^0$ $<1.0 \times 10^0$	>99.9
488019-03	*Escherichia coli* O157:H7	05012064	6.6×10^6	4.7×10^2 6.9×10^2 4.5×10^2 4.8×10^2 3.8×10^2	>99.9
		05112024	6.6×10^6	5.6×10^2 3.6×10^2 3.2×10^2 3.9×10^2 3.6×10^2	>99.9

Supplemental Sanitizer—Cupron Enhanced EOS Hard Surface Beige

MRID Number	Organism	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
488019-13	*Staphylococcus aureus*	05012064	7.5×10^5	$<1.0 \times 10^0$ 5.0×10^1 $<1.0 \times 10^0$ 8.0×10^1 $<1.0 \times 10^0$	>99.9
		05112024	7.5×10^5	2.8×10^2 $<1.0 \times 10^0$ 7.0×10^1 $<1.0 \times 10^0$ $<1.0 \times 10^0$	>99.9
		05108058	7.5×10^5	$<1.0 \times 10^0$ $<1.0 \times 10^0$ $<1.0 \times 10^0$ $<1.0 \times 10^0$ $<1.0 \times 10^0$	>99.9
488019-13	*Enterobacter aerogenes*	05012064	7.9×10^6	7.0×10^1 5.4×10^2 1.4×10^2 6.5×10^2 1.2×10^2	>99.9
		05112024	7.9×10^6	2.4×10^2 7.5×10^2 2.4×10^2 4.6×10^2 4.1×10^2	>99.9
		05108058	7.9×10^6	7.7×10^2 6.1×10^2 4.1×10^2 2.3×10^2 4.5×10^2	>99.9

MRID Number	Organism	Lot No.	Average No. Surviving	Amount Recovered	Percent Reduction
			(CFU/carrier)		
488019-12	*Pseudomonas aeruginosa*	05012064	7.0×10^5	8.2×10^2 7.4×10^2 6.0×10^2 8.8×10^2 8.9×10^2	>99.9
		05112024	7.0×10^5	9.3×10^2 8.4×10^2 7.3×10^2 8.7×10^2 9.9×10^2	>99.9
488019-12	Methicillin Resistant *Staphylococcus aureus* (MRSA)	05012064	8.5×10^5	$<1.0 \times 10^0$ $<1.0 \times 10^0$ $<1.0 \times 10^0$ $<1.0 \times 10^0$ $<1.0 \times 10^0$	>99.9
		05112024	8.5×10^5	$<1.0 \times 10^0$ $<1.0 \times 10^0$ $<1.0 \times 10^0$ $<1.0 \times 10^0$ $<1.0 \times 10^0$	>99.9
488019-12	*Escherichia coli* O157:H7	05012064	6.6×10^5	6.4×10^2 7.2×10^2 3.0×10^2 7.0×10^2 7.0×10^2	>99.9
		05112024	6.6×10^5	6.6×10^2 5.4×10^2 4.9×10^2 7.6×10^2 3.0×10^2	>99.9

Continuous Bacterial Contamination Reduction—Cupron Enhanced EOS Hard Surface Grey

MRID Number	Organism	Contact Time	Lot No.	Average No. Surviving	Amount Recovered	Percent Reduction
				(CFU/carrier)		
488019-04	*Staphylococcus aureus*	2 Hours	05012064	9.3×10^5	2.2×10^2	>90
					3.4×10^2	
					5.0×10^2	
					6.7×10^2	
					2.9×10^2	
			05112024	9.3×10^5	4.2×10^2	>90
					2.7×10^2	
					2.9×10^2	
					3.2×10^2	
					2.2×10^2	
			05108058	9.3×10^5	3.8×10^2	>90
					4.2×10^2	
					3.4×10^2	
					2.9×10^2	
					2.7×10^2	
		6	05012064	1.8×10^6	$<1.0 \times 10^0$	>90

MRID Number	Organism	Contact Time	Lot No.	Average No. Surviving	Amount Recovered	Percent Reduction
				(CFU/carrier)		
		Hours			$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	1.8×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05108058	1.8×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		12 Hours	05012064	2.5×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	2.5×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05108058	2.5×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		18 Hours	05012064	3.6×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	3.6×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05108058	3.6×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		24 Hours	05012064	4.6×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	4.6×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05108058	4.6×10^6	$<1.0 \times 10^0$	>90

MRID Number	Organism	Contact Time	Lot No.	Average No. Surviving	Amount Recovered	Percent Reduction
				(CFU/carrier)		
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	

Continuous Bacterial Contamination Reduction—Cupron Enhanced EOS Hard Surface Grey

MRID Number	Organism	Contact Time	Lot No.	Average No. Surviving	Amount Recovered	Percent Reduction
				(CFU/carrier)		
488019-04	*Enterobacter aerogenes*	2 Hours	05012064	2.0×10^6	1.1×10^2	>90
					2.2×10^2	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	2.0×10^6	$<1.0 \times 10^0$	>90
					1.0×10^2	
					2.2×10^2	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05108058	2.0×10^6	8.0×10^1	>90
					4.0×10^1	
					1.7×10^2	
					$<1.0 \times 10^0$	
					8.0×10^1	
		6 Hours	05012064	3.9×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	3.9×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05108058	3.9×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		12 Hours	05012064	4.7×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	4.7×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05108058	4.7×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	

MRID Number	Organism	Contact Time	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
					$<1.0 \times 10^0$	
		18 Hours	05012064	5.6×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	5.6×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05108058	5.6×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		24 Hours	05012064	7.9×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	7.9×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05108058	7.9×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	

Continuous Bacterial Contamination Reduction—Cupron Enhanced EOS Hard Surface Grey

MRID Number	Organism	Contact Time	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
488019-05	*Pseudomonas aeruginosa*	2 Hours	05012064	2.5×10^5	4.8×10^2	>90
					3.7×10^2	
					4.8×10^2	
					1.8×10^2	
					1.2×10^0	
			05112024	2.5×10^5	4.2×10^2	>90
					4.8×10^2	
					2.4×10^2	
					4.5×10^2	
					3.6×10^2	
		6 Hours	05012064	5.2×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	5.2×10^5	1.7×10^2	>90

MRID Number	Organism	Contact Time	Lot No.	Average No. Surviving	Amount Recovered (CFU/carrier)	Percent Reduction
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		12 Hours	05012064	7.2×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	7.2×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		18 Hours	05012064	9.6×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	9.6×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		24 Hours	05012064	9.7×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	9.7×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	

Continuous Bacterial Contamination Reduction—Cupron Enhanced EOS Hard Surface Grey

MRID Number	Organism	Contact Time	Lot No.	Average No. Surviving	Amount Recovered (CFU/carrier)	Percent Reduction
488019-05	Methicillin Resistant *Staphylococcus aureus* (MRSA)	2 Hours	05012064	4.0×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	4.0×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		6 Hours	05012064	8.8×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	

MRID Number	Organism	Contact Time	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	8.8×10^5	1.7×10^2	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		12 Hours	05012064	1.0×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	1.0×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		18 Hours	05012064	1.7×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	1.7×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		24 Hours	05012064	1.8×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	1.8×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	

Continuous Bacterial Contamination Reduction—Cupron Enhanced EOS Hard Surface Grey

MRID Number	Organism	Contact Time	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
488019-05	*Escherichia coli* O157:H7	2 Hours	05012064	2.6×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	2.6×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		6 Hours	05012064	5.3×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	5.3×10^5	1.7×10^2	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		12 Hours	05012064	7.7×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	7.7×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		18 Hours	05012064	1.0×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	1.0×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		24 Hours	05012064	1.2×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	

MRID Number	Organism	Contact Time	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
			05112024	1.2×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	

Continuous Bacterial Contamination Reduction—Cupron Enhanced EOS Hard Surface Beige

MRID Number	Organism	Contact Time	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
488019-11	*Staphylococcus aureus*	2 Hours	05012064	9.3×10^5	7.6×10^2	>90
					5.8×10^2	
					7.7×10^2	
					7.3×10^2	
					5.5×10^2	
			05112024	9.3×10^5	7.8×10^2	>90
					7.7×10^2	
					5.2×10^2	
					5.4×10^2	
					4.6×10^2	
			05108058	9.3×10^5	4.8×10^2	>90
					4.2×10^2	
					4.2×10^2	
					4.5×10^2	
					4.1×10^2	
		6 Hours	05012064	1.8×10^6	2.8×10^2	>90
					2.6×10^2	
					3.3×10^2	
					2.3×10^2	
					7.0×10^2	
			05112024	1.8×10^6	3.2×10^2	>90
					3.0×10^2	
					2.2×10^2	
					2.6×10^2	
					2.0×10^2	
			05108058	1.8×10^6	1.6×10^2	>90
					1.0×10^2	
					1.2×10^2	
					1.4×10^2	
					1.8×10^2	
		12 Hours	05012064	2.5×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	2.5×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05108058	2.5×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	

MRID Number	Organism	Contact Time	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		18 Hours	05012064	3.6×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	3.6×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05108058	3.6×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		24 Hours	05012064	4.6×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	4.6×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05108058	4.6×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	

Continuous Bacterial Contamination Reduction—Cupron Enhanced EOS Hard Surface Beige

MRID Number	Organism	Contact Time	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
488019-11	*Enterobacter aerogenes*	2 Hours	05012064	2.0×10^5	2.5×10^2	>90
					2.4×10^2	
					4.6×10^2	
					2.5×10^2	
					2.8×10^2	
			05112024	2.0×10^5	6.2×10^2	>90
					6.4×10^2	
					3.3×10^2	
					3.4×10^0	
					2.6×10^0	
			05108058	2.0×10^5	3.6×10^2	>90
					2.4×10^2	
					2.8×10^2	
					2.2×10^2	

MRID Number	Organism	Contact Time	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
					2.7×10^2	
		6 Hours	05012064	3.9×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	3.9×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05108058	3.9×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		12 Hours	05012064	4.7×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	4.7×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05108058	4.7×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		18 Hours	05012064	5.6×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	5.6×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05108058	5.6×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		24 Hours	05012064	7.9×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	7.9×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	

MRID Number	Organism	Contact Time	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
					$<1.0 \times 10^0$	
			05108058	7.9×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	

Continuous Bacterial Contamination Reduction—Cupron Enhanced EOS Hard Surface Beige

MRID Number	Organism	Contact Time	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
488019-05	*Pseudomonas aeruginosa*	2 Hours	05012064	2.5×10^5	2.6×10^2	>90
					2.0×10^2	
					5.4×10^2	
					2.0×10^2	
					4.0×10^0	
			05112024	2.5×10^5	2.0×10^2	>90
					4.1×10^2	
					5.6×10^2	
					2.8×10^2	
					6.8×10^2	
		6 Hours	05012064	5.2×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	5.2×10^5	1.7×10^2	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		12 Hours	05012064	7.2×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	7.2×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		18 Hours	05012064	9.6×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	9.6×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		24	05012064	9.7×10^5	$<1.0 \times 10^0$	>90

MRID Number	Organism	Contact Time Hours	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	9.7×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	

Continuous Bacterial Contamination Reduction—Cupron Enhanced EOS Hard Surface Beige

MRID Number	Organism	Contact Time	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
488019-10	Methicillin Resistant *Staphylococcus aureus* (MRSA)	2 Hours	05012064	4.0×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	4.0×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		6 Hours	05012064	8.8×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	8.8×10^5	1.7×10^2	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		12 Hours	05012064	1.0×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	1.0×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		18 Hours	05012064	1.7×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	1.7×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	

MRID Number	Organism	Contact Time	Lot No.	Average No. Surviving	Amount Recovered	Percent Reduction
				(CFU/carrier)		
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		24 Hours	05012064	1.8×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	1.8×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	

Continuous Bacterial Contamination Reduction—Cupron Enhanced EOS Hard Surface Beige

MRID Number	Organism	Contact Time	Lot No.	Average No. Surviving	Amount Recovered	Percent Reduction
				(CFU/carrier)		
488019-05	*Escherichia coli* O157:H7	2 Hours	05012064	2.6×10^5	$<1.0 \times 10^0$	>90
					1.3×10^2	
					2.1×10^2	
					$<1.0 \times 10^0$	
					3.0×10^1	
			05112024	2.6×10^5	4.4×10^2	>90
					2.5×10^2	
					1.7×10^2	
					3.9×10^2	
					1.3×10^2	
		6 Hours	05012064	5.3×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	5.3×10^5	1.7×10^2	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		12 Hours	05012064	7.7×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	7.7×10^5	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		18 Hours	05012064	1.0×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	

MRID Number	Organism	Contact Time	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
			05112024	1.0×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
		24 Hours	05012064	1.2×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
			05112024	1.2×10^6	$<1.0 \times 10^0$	>90
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	
					$<1.0 \times 10^0$	

Residual Self-Sanitizing—Cupron Enhanced EOS Hard Surface Grey

MRID Number	Organism	Evaluation	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
488019-06	*Staphylococcus aureus*	Initial	05012064	1.3×10^6	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
			05112024	1.3×10^6	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
			05108058	1.3×10^6	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
		Final	05012064	1.1×10^6	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
			05112024	1.1×10^6	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
			05108058	1.1×10^6	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	

Residual Self-Sanitizing—Cupron Enhanced EOS Hard Surface Grey

MRID Number	Organism	Evaluation	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
488019-06	*Enterobacter aerogenes*	Initial	05012064	1.1×10^6	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	

MRID Number	Organism	Evaluation	Lot No.	Average No. Surviving	Amount Recovered	Percent Reduction
				(CFU/carrier)		
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
			05112024	1.1×10^5	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
			05108058	1.1×10^5	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
		Final	05012064	1.2×10^5	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
			05112024	1.2×10^5	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
			05108058	1.2×10^5	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	

Residual Self-Sanitizing—Cupron Enhanced EOS Hard Surface Grey

MRID Number	Organism	Evaluation	Lot No.	Average No. Surviving	Amount Recovered	Percent Reduction
				(CFU/carrier)		
488019-06	*Pseudomonas aeruginosa*	Initial	05012064	1.3×10^5	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
			05112024	1.3×10^5	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					9.0×10^1	
		Final	05012064	2.0×10^5	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
			05112024	2.0×10^5	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	

Residual Self-Sanitizing—Cupron Enhanced EOS Hard Surface Grey

MRID Number	Organism	Evaluation	Lot No.	Average No. Surviving	Amount Recovered	Percent Reduction
				(CFU/carrier)		
488019-06	Methicillin Resistant *Staphylococcus aureus* (MRSA)	Initial	05012064	7.5×10^5	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
			05112024	7.5×10^5	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	

MRID Number	Organism	Evaluation	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
					$<1.5 \times 10^0$	
					9.0×10^1	
		Final	05012064	6.9×10^5	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
			05112024	6.9×10^5	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	

Residual Self-Sanitizing—Cupron Enhanced EOS Hard Surface Grey

MRID Number	Organism	Evaluation	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
488019-06	*Escherichia coli* O157:H7	Initial	05012064	1.1×10^6	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
			05112024	1.1×10^6	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					9.0×10^1	
		Final	05012064	9.4×10^5	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
			05112024	9.4×10^5	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	

Residual Self-Sanitizing—Cupron Enhanced EOS Hard Surface Beige

MRID Number	Organism	Evaluation	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
488019-09	*Staphylococcus aureus*	Initial	05012064	1.3×10^6	4.5×10^0	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
			05112024	1.3×10^6	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					2.0×10^2	
			05108058	1.3×10^6	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	

MRID Number	Organism	Evaluation	Lot No.	Average No. Surviving	Amount Recovered	Percent Reduction
				(CFU/carrier)		
					$<1.5 \times 10^0$	
					2.4×10^2	
		Final	05012064	1.1×10^6	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
			05112024	1.1×10^6	$<1.5 \times 10^0$	>99.9
					3.3×10^2	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
			05108058	1.1×10^6	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	

Residual Self-Sanitizing—Cupron Enhanced EOS Hard Surface Beige

MRID Number	Organism	Evaluation	Lot No.	Average No. Surviving	Amount Recovered	Percent Reduction
				(CFU/carrier)		
488019-06	*Enterobacter aerogenes*	Initial	05012064	1.1×10^6	$<1.5 \times 10^0$	>99.9
					6.0×10^1	
					1.8×10^2	
					$<1.5 \times 10^0$	
			05112024	1.1×10^6	9.0×10^1	>99.9
					1.5×10^2	
					4.2×10^2	
					$<1.5 \times 10^0$	
			05108058	1.1×10^6	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
		Final	05012064	1.2×10^6	3.8×10^2	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
			05112024	1.2×10^6	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					3.2×10^2	
			05108058	1.2×10^6	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	

Residual Self-Sanitizing—Cupron Enhanced EOS Hard Surface Beige

MRID Number	Organism	Evaluation	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
488019-08	*Pseudomonas aeruginosa*	Initial	05012064	1.3×10^6	1.5×10^2	>99.9
					$<1.5 \times 10^0$	
					9.0×10^1	
					2.3×10^2	
			05112024	1.3×10^6	4.5×10^2	>99.9
					5.7×10^2	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
		Final	05012064	2.0×10^6	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
			05112024	2.0×10^6	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	

Residual Self-Sanitizing—Cupron Enhanced EOS Hard Surface Beige

MRID Number	Organism	Evaluation	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
488019-06	Methicillin Resistant *Staphylococcus aureus* (MRSA)	Initial	05012064	7.5×10^5	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
			05112024	7.5×10^5	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					9.0×10^1	
		Final	05012064	6.9×10^5	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
			05112024	6.9×10^5	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	

Residual Self-Sanitizing—Cupron Enhanced EOS Hard Surface Beige

MRID Number	Organism	Evaluation	Lot No.	Average No. Surviving (CFU/carrier)	Amount Recovered (CFU/carrier)	Percent Reduction
488019-06	*Escherichia coli* O157:H7	Initial	05012064	1.1×10^6	$<1.5 \times 10^0$	>99.9
					6.0×10^1	
					1.8×10^2	
					$<1.5 \times 10^0$	
			05112024	1.1×10^6	9.0×10^1	>99.9
					1.5×10^2	
					4.2×10^2	
					$<1.5 \times 10^0$	
		Final	05012064	9.4×10^5	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
			05112024	9.4×10^5	$<1.5 \times 10^0$	>99.9
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	
					$<1.5 \times 10^0$	

VI CONCLUSIONS

The registrant must provide the manufacturing and application processes for multiple use sites as they extend beyond those stated in the applicant's letter (i.e. applicant's letter, dated April 15, 2012, list tables, desks, and nonfood contact counters). The acceptability of these studies can be extended once this information is provided and verified against proposed use sites (i.e. are use sites exposed to constant and intermittent water exposure (sinks, drains, bedside lavatory sinks, soap holders, etc.).